

INTERMOUNTAIN STATES (R-4) 1/

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CONDITIONS IN BRIEF

Bark beetles remain the most destructive group of insects in the Intermountain Region. The most damaging is the mountain pine beetle in lodgepole pine in portions of southeast Idaho and western Wyoming. Regionwide, populations are on the decline, but in some areas of the Targhee National Forest and Grand Teton National Park, serious tree killing persists. In the Targhee infestation, beetle populations are encroaching the Moose Creek Plateau and threatening a large timber sale. Hopefully, most of the timber can be removed before the beetle exerts its full impact.

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1/ Includes forested lands in Utah, Nevada, southern Idaho, western Wyoming, and eastern California.

The spruce beetle continues to kill large volumes of Engelmann spruce in high elevation stands in north central Utah. The most damaging and aggressive outbreak is in the Manti Division of the Manti-LaSal National Forest. The Hilgard Mountain infestation to the south on the Fishlake National Forest remains low. Douglas-fir beetle populations and resulting damage is down from last year, but one new outbreak, triggered by storm-caused debris, cropped up on the Targhee National Forest.

The ubiquitous defoliator complex continues to damage Douglas-fir, true fir, and ponderosa pine stands in the Region. Western spruce budworm defoliation increased over that recorded last year, but evaluation surveys indicate a decline in both intensity and extent of damage for 1973. More than 6,000 acres of mature ponderosa pine were defoliated by the pine butterfly. Even more aggressive activity, including top kill and possibly some tree mortality, is predicted for next year. Douglas-fir tussock moth activity emerged in two isolated outbreaks in southern Nevada.

Dwarf mistletoe control projects were approved and financed for 569 acres. However, all unobligated funds, approximately two-thirds, were withdrawn to finance southern pine beetle control projects. Data were gathered in infested and uninfested lodgepole pine stands for comparison with Region 2 conditions. The computer program "LPMIST" developed by the Rocky Mountain Station will be used to make the comparison and can be modified if Region 4 conditions differ from Region 2.

Two Fomes annosus infection centers were found. The use of "Borax" on freshly cut stumps on ski areas on the Wasatch National Forest was approved. Studies of fungus spread, impact, and spore dispersion are being planned.

Dutch elm disease may become a problem in ornamental elms in the future.

A recreation area hazard survey was conducted on selected campgrounds. The data have, as yet, not been analyzed.

STATUS OF INSECTS

Mountain pine beetle, Dendroctonus ponderosae Hopk., infestations continue to decline regionwide but, in some areas, epidemic conditions persist. The largest and most active infestations are on the Targhee National Forest in Idaho and Wyoming, and in Grand Teton National Park, Wyoming. In the Warm River area of the Targhee National Forest, where intensive control was terminated 2 years ago, the infestation has resurged and combined with the large outbreak in Yellowstone National Park; it is now encroaching the Moose Creek plateau and threatening more than 200 million board feet of prime timber. Salvage logging is now underway in the Warm River area, but it will have little effect on the expanding beetle population. To the north, in many of the lower elevations of the Moose Creek area, beetle numbers and tree mortality have increased many fold but in the high regions of the plateau, tree killing is still low. By maintaining an aggressive and orderly harvesting schedule, most of the threatened timber can be utilized before extensive damage occurs.

In Grand Teton National Park, Wyoming, heavy tree killing is occurring in the "corridor" between Jackson Lake and Yellowstone National Park. This is the southern part of the huge outbreak that encompasses almost the entire south half of Yellowstone National Park. In adjacent Teton Wilderness and Teton National Forest, very little beetle activity is in progress.

Elsewhere in Wyoming and southern Idaho, tree killing continues but at a reduced level. Widely scattered outbreaks persist near McCall, Idaho, and in both divisions of the Bridger National Forest, Wyoming. Even less intensive infestations exist in portions of the Caribou National Forest, Idaho, and the Cache National Forest, Idaho and Utah; but they are only the aftermath of past epidemics. Small but aggressive infestations are depleting lodgepole stands in and near Flaming Gorge National Recreation Area, Ashley National Forest, and in the Stillwater Fork of the Bear River, Wasatch National Forest, Utah.

Stands of stagnant second-growth and mature ponderosa pine are under attack by the mountain pine beetle in widely separated outbreaks near Flaming Gorge National Recreation Area; in Bryce Canyon National Park, Utah; and on State and private lands near Cascade, Idaho.

High elevation whitebark and limber pine stands in southeast Idaho and western Wyoming are now under attack by the mountain pine beetle. These infestations result partly from nearby infested lodgepole pine stands and partly from localized buildups.

Douglas-fir beetle, Dendroctonus pseudotsugae Hopk. The long standing and damaging outbreak in mature and overmature Douglas-fir stands throughout many southern Idaho forests, maintained its downward trend for the second straight year. In local areas, such as the Fairfield Ranger District, Sawtooth National Forest, a high incidence of tree killing remains, but in the absence of storm debris and other brood-nurturing media, insect populations will continue to decline. One deviation from this optimistic outlook is on the Targhee National Forest, where storm-caused debris triggered a spotty but extensive infestation over the north half of the Forest. An evaluation survey indicates that above normal tree killing will continue for the next 2 years. Efforts are underway to salvage as much of the infested material as possible. Elsewhere in the Region, the Douglas-fir beetle remains at a very low level..

Ips spp. and other secondary insects characteristically build up following a mountain pine beetle outbreak. These insects multiply in tops of lodgepole pine killed by the mountain pine beetle; and during the waning years, they move into the smaller, weaker trees. On the Targhee National Forest, Idaho, the situation is unusually severe, since during the past 2 years, high winds have broken millions of green as well as dead trees and created even more plentiful breeding material. Because of the extensiveness of these secondary insects and their association with the mountain pine beetle, their overall impact, which was considerable, cannot be accurately measured.

In one area on the Boise National Forest, Idaho, Ips spp. beetles caused heavy losses of ponderosa pine adjacent to a timber sale. The infested trees were spotted, felled, and burned.

Spruce beetle, Dendroctonus rufipennis (Kby.), activity, triggered by abnormal quantities of both scattered and concentrated windthrow, continues at damaging levels in high elevation spruce stands in north central Utah. The most widespread and damaging infestation is along most of the north facing slopes of the Huntington Creek drainage, Manti-LaSal National Forest. This infestation has been in progress since 1969 and, in some areas, a high percentage of merchantable volume has been killed. An evaluation survey indicates no decrease in the high rate of tree mortality and that tree killing will continue until most of the larger trees are killed or unforeseen natural control factors intervene.

Natural factors, chiefly host depletion, are responsible for the decline of the long standing infestation south of Hilgard Mountain, Fishlake National Forest. A planned trap tree and timber sale program on the Beaver Ranger District was never carried out because of operator disinterest. The status of this infestation is unknown.

Roundheaded pine beetle, Dendroctonus adjunctus Blandf. This primary killer of mature and overmature ponderosa pine, for several years a serious problem in recreation sites and a summer home area on the Las Vegas District, Toiyabe National Forest, Nevada, continues its downward trend. Control efforts of felling and treating or removing the infested trees may have been locally effective, but the overall decline in the beetle population was due to natural factors. Salvage of infested trees on a maintenance basis will continue.

Western spruce budworm, Choristoneura occidentalis Free. Two widely separated and persistent infestations continue to plague portions of the Douglas-fir-true fir stands of southern Idaho and western Wyoming. Both infestations, one in the Payette and Boise National Forests, Idaho, and the other in the Bridger, Targhee and Teton National Forests, Wyoming, increased in area but decreased slightly in intensity of damage. In the Payette infestation, top kill of mature trees and some mortality of the suppressed understory occurred in Fall Creek. No serious permanent damage was noted in the Bridger infestation. The outlook for 1973 is optimistic--egg mass evaluation surveys indicate a slight lessening in defoliated area but a sizeable decrease in feeding damage. Many trees that sustained repeated, heavy defoliation, may now have a year to recover.



A synthesized pheromone of the western spruce budworm, known as Soolure, was tested this summer in the Payette infestation to determine its potential as a survey tool. The data have not yet been analyzed.

Lodgepole terminal weevil, Pissodes terminalis Hopp., is widespread throughout the lodgepole pine type. Terminal damage of varying intensity has been reported in regeneration areas of the Targhee and Sawtooth National Forests, Idaho, and the Wasatch and Ashley National Forests, Utah. In some areas, trees have sustained repeated attacks. Due to recent efforts to increase the harvest of mountain pine beetle threatened lodgepole pine and create more reproduction sites, and the fact that the weevil seems to prefer young, open-grown trees, this insect has the potential of becoming a serious problem.

Pine butterfly, Neophasia menapia (Feld. & Feld.), moth flights were observed throughout most of the ponderosa pine type in the Region. This defoliator reached epidemic status on more than 6,000 acres in the northern half of the Payette National Forest, Idaho. This is an extension of the severe outbreak to the north across the Salmon River on the Nezperce National Forest. Although defoliation was classed as light to medium, fall egg mass surveys indicate an increase in both intensity and extent of damage in 1973. In some areas, top kill and possibly mortality of the most heavily defoliated trees may occur.

A few pine butterfly adults were accidentally caught in western spruce budworm pheromone traps in Bryce Canyon National Park, Utah.

Douglas-fir tussock moth, Hemerocampa pseudotsugata McD., reached noticeable proportions on white fir and Douglas-fir in portions of the Virgin and Spring Mountains of southern Nevada. White fir sustained heavier damage than Douglas-fir and in one area near a Boy Scout camp in the Spring Mountains, patches of mature trees as well as reproduction were completely defoliated.

The long standing and fluctuating infestation in Douglas-fir on BLM and State and private holdings in Owyhee County, Idaho, declined as expected. In one area near Silver City, which had experienced repeated defoliation, an undetermined amount of tree mortality occurred.

A sawfly, Neodiprion fulviceps (Cresson), defoliated a small isolated stand of ponderosa pine for the third consecutive year in Clear Creek, Fishlake National Forest, Utah. Surprisingly, many of the most heavily defoliated trees are still alive; and if secondary insects such as Ips spp. do not serve the coup de grace, many of them may yet survive.

DISEASES

Dwarf mistletoe, Arceuthobium spp. Dwarf mistletoe continues to be the most serious disease problem in the Intermountain Region. Lodgepole pine dwarf mistletoe, A. americanum Nutt. ex. Engelm., caused severe impact on lodgepole pine in southeastern Idaho, western Wyoming, and northern Utah. Western dwarf mistletoe, A. campylopodum Engelm. f. campylopodum, is prevalent and damaging on ponderosa pine in western and central Idaho and Jeffrey pine in western Nevada. Southwestern dwarf mistletoe, A. vaginatum (Presl.) Willd. subsp. cryptopodum (Engelm.) Hawk. and Wiens, is commonly found throughout the range of ponderosa pine in southern Utah and Nevada. Douglas-fir dwarf mistletoe, A. douglasii Engelm., is common throughout the Region and is probably the most damaging of the dwarf mistletoes.

Estimates from timber survey data, forest timber management plans, and research results revealed that impact (growth loss and mortality) is 135 million board feet per year. This is probably a conservative figure.

Timber sales and silvicultural programs properly conducted are the best methods to reduce losses to these pathogens. In addition, control projects are conducted on areas which were high graded in the past; e.g., tie hack areas or areas selectively logged with no adequate sale area betterment programs. Criteria for selection of areas in which control will be done include good site, adequate regeneration, and noncommercial dwarf mistletoe infected overstory. A simple, quick survey consisting of a series of 1/300-acre plots to sample the understory and a variable plot to determine the number of overstory trees/acre provides data for the biological evaluation.

Control project funds can only be used to remove the infected overstory (by felling or girdling). In addition, the sanitation-thinning of the understory is only financed to the percentage of infection of the understory. On the average, 12-15 project proposals are submitted each year and 600-1,000 acres are treated. This year, approximately two-thirds of the dwarf mistletoe control funds, those which were not obligated by the Forests, were withdrawn by the Washington 40office to help finance the southern pine beetle control project.

This summer data were gathered to determine whether dwarf mistletoe infected lodgepole pine stands in Region 4 are comparable with those in Region 2. If they are, the program developed by Meyers, Hawksworth, and Stewart for simulating yields in infected lodgepole stands can be applied in this Region. If conditions are not similar, the program can be modified for Region 4 conditions. It is anticipated that this program will be of great use to the forest managers.

Annosus root rot, Fomes annosus (Fr.) Cke. Two Fomes annosus infection centers were found during the course of other work. The first center was at Incline Village at the north end of Lake Tahoe, and appears to have been created by construction activities. The other center was found on Ditch Creek, North Fork Ranger District, Salmon National Forest, killing ponderosa pine reproduction. Logging created the infection court.

The Pesticide Use Coordinating Committee approved the use of "Borax" on freshly cut stumps for prevention of Fomes annosus infection. However, at present, use is restricted to stumps created on ski areas on the Wasatch National Forest. An effort is being made to get approval for broader usage.

Dutch elm disease, Ceratocystis ulmi (Buism.) C. Moreau. This summer a report was received via the Colorado State Forester's office that Dutch elm disease had been observed on the Utah State Capitol grounds. The report was investigated and found in error. However, it is felt that it is only a question of time before this disease will be found throughout the Intermountain Region, since it is presently in Grand Junction, Colorado; Boise, Idaho; and in surrounding towns.

Hazard trees on recreation areas. Twelve recreation areas were sampled this summer to determine the type and extent of tree hazards to the recreation user. When the data have been summarized and analyzed, a report will be written and distributed.